WHAT IS CLAIMED IS:

1. A gain-clamped semiconductor optical amplifier having a horizontal lasing structure, the gain-clamped semiconductor optical amplifier comprising:

a gain layer for amplifying an optical signal;

a Bragg lattice layer formed on both sides of the gain layer along a longitudinal direction of the gain layer, said Bragg layer enabling light having a corresponding wavelength to resonate in a direction vertical to a longitudinal direction of the gain layer;

a passive light waveguide layer for restraining light resonating between lattices of the Bragg lattice layer;

an electrode for supplying current to the gain layer; and

a current-blocking layer for preventing current from flowing to an area other than the gain layer.

2. The gain-clamped semiconductor optical amplifier as claimed in c laim 1, wherein the passive light waveguide layer is formed above the Bragg lattice layer.

3. The gain-clamped semiconductor optical amplifier as claimed in c laim 1, wherein the passive light waveguide layer is formed below the Bragg lattice layer.

4. The gain-clamped semiconductor optical amplifier as claimed in c laim 1, further comprising a phase conversion area formed at one side of the Bragg lattice layer.

5. The gain-clamped semiconductor optical amplifier as claimed in claim 1, wherein the phase conversion area is adjusted by omitting a predetermined portion of the Bragg lattices from the Bragg layer.

6. The gain-clamped semiconductor optical amplifier as claimed in claim 4, further comprising a phase conversion electrode for supplying current to the phase conversion area.

7. The gain-clamped semiconductor optical amplifier as claimed in claim 5, further comprising a phase conversion electrode for supplying current to the phase conversion area.

8. The gain-clamped semiconductor optical amplifier as claimed in c laim 1, wherein the gain-clamped semiconductor optical amplifier includes a ridge type gain-clamped semiconductor optical amplifier.

9. The gain-clamped semiconductor optical amplifier as claimed in c laim 1, wherein the gain-clamped semiconductor optical amplifier has a buried hetero-structure.

10. A method for manufacturing a gain-clamped semiconductor optical amplifier having a horizontal lasing structure, the method comprising the steps of:

a) forming a Bragg lattice layer on a first conductive semiconductor substrate other than on a predetermined gain layer forming area;

b) forming a first conductive lower clad layer, a light waveguide layer, and a first conductive upper clad layer on the first conductive semiconductor substrate having the Bragg lattice layer thereon;

c) forming a gain layer and a second conductive clad layer on the first conductive upper clad layer of the predetermined gain layer forming area;

d) forming a current-blocking layer on a predetermined area of the first conductive upper clad layer, on which the gain layer is not formed; and

e) forming an electrode above the second conductive clad layer and a predetermined area of the first conductive upper clad layer, on which the current-blocking layer is not formed, in such a manner that the electrode surrounds the gain layer.

11. The method as claimed in claim 10, wherein in step a), a predetermined portion of the Bragg lattice layer has no Bragg lattices so as to form a phase conversion area thereto.

12. The method as claimed in claim 11, wherein a portion of the Bragg lattice is omitted to adjust an amount of phase conversion.

13. The method as claimed in claim 11, further comprising a step of forming a phase conversion electrode for applying a current to the phase conversion area.

14. The method as claimed in claim 11, further comprising a step of forming a phase conversion electrode for applying a voltage to the phase conversion area.

15. A method for manufacturing a gain-clamped semiconductor optical amplifier having a horizontal lasing structure, the method comprising the steps of:

a) forming a gain material layer and a second conductive lower clad layer on a first conductive semiconductor substrate;

b) forming a mask pattern on the second conductive lower clad layer of a predetermined gain layer forming area, forming a gain layer having a mesa structure through a selective etching process using the mask pattern as an etching mask, and forming an etching groove in the first conductive semiconductor substrate corresponding to a side wall of the gain layer;

c) forming a current-blocking layer on the etching groove;

d) forming a light waveguide layer including a material having a refractive index higher than that of the first conductive semiconductor substrate, on the current-blocking layer;

e) forming a Bragg lattice layer on the light waveguide layer;

f) forming a second conductive upper clad layer on an entire surface of the Bragg lattice layer and the gain layer; and

g) forming an electrode on the second conductive upper clad layer for supplying current to the gain layer.

16. The method as claimed in claim 15, wherein, in step e), a phase conversion area is performed from a predetermined area of the Bragg lattice layer that does not have Bragg lattices.

17. The method as claimed in claim 15, further comprising a step of forming a phase conversion electrode for applying a current to the phase conversion area.

18. The method as claimed in claim 15, further comprising a step of forming a phase conversion electrode for applying a voltage to the phase conversion area.

19. The method as claimed in claim 15, wherein a gap between the gain layer and the light waveguide layer is substantially within 2 *um*.

20. The method as claimed in claim 15, wherein a gap between the gain layer and the light waveguide layer is approximately 2 *um*.